REMARKS

Reconsideration and allowance of the present application based on the foregoing amendments and the following remarks are respectfully requested.

Claims 1-4 and 7-34 are currently pending in the present application.

Prior Art Rejections

Claims 1-4 and 7-34 stand rejected as being obvious over Sykes in view of Notaras.

Independent Claim 1

Claim 1 has been amended to recite "a cam-and-drum member mounted for rotation relative to said brake actuator lever, said cam-and-drum member being formed from a single sheet metal member as an integral and continuous one-piece part including a protruding drum portion and a cam portion integral and continuous with the drum portion, the cam portion having a flange portion deformed into a general U-shape with integral side walls continuous as one-piece with the cam portion to provide a groove defining a cable guide for receiving the brake cable and enabling winding thereof onto the cam portion."

This is not taught in Sykes. In Sykes, the disclosure clearly describes the relevant components noted above as being formed from separate parts. Specifically, Sykes states at column 5, lines 18-29:

> Referring to FIGS. 2 and 6, self-adjusting cam subassembly 160 comprises a drum 72, an inner cam 78, an outer cam 80, a cam sector 74, having a plurality of engagement teeth 76, and a helical self-adjust spring 70. Cam sector 76, outer cam 78 and inner cam 80 [are] secured to one another by bosses 226 upset in holes 228 and 229. Drum 72, inner cam 78 and outer cam 80 are secured together through the cooperation of tabs 220 and slots 222 and 224. Cam subassembly 160 is rotatably mounted to lever assembly A between cover plate 48 and intermediate plate 46 by cam rivet 128, mounted in holes 204 and 206, respectively, and passing through holes, 214, 216, and 218, respectively.

Thus, it is clear that the relevant components in Sykes are assembled together from separate parts, and are not "integral and continuous" and "one-piece," as recited in the claims. To make up for this deficiency, the Examiner relies on Notaras for the teaching of a one-piece integral structure.

As an initial matter, the Examiner characterizes Notaras as "a brake component." This, however, is not accurate. Notaras discloses a centrifugal clutch driving assembly. Notaras does not disclosed any part of a vehicle brake system, and clearly is not directed to a brake component.

Further, the Examiner is relying on Notaras for the proposition that "[i]t would have been obvious to one of ordinary skill in the art to stamp two components into a single component as taught by Notaras et al. in order to simplify assembly of an apparatus." The Examiner cites component 10 as being this component. However, nothing in Notaras teaches or suggests forming the specific components recited in claim 1 from one integral and continuous piece.

At best, Notaras teaches that a metal component can be stamped (albeit in a non-analogous art). This is not new and the Applicants have never purported to broadly claim all components that have been stamped or otherwise integrally formed. Instead, claim 1 recites that certain specific components of a brake actuator are integrally formed together. These include the "cam-and-drum member formed from a single sheet metal member as an integral and continuous one-piece part;" and the "cam portion" of the "cam-and-drum member" that has "a flange portion deformed into a general U-shape with integral side walls continuous as one-piece with the cam portion to provide a groove defining a cable guide for receiving the brake cable and enabling winding thereof onto the cam portion."

By forming the flange portion into the "general U-shape with integral side walls continuous as one-piece with the cam portion," significant advantages are achieved. First, the entire part is made from one sheet metal member, which reduces cost and avoids the need for assembling separate parts together. Second, the resulting structure is stronger and functions better. Specifically, with the construction of Sykes where the cable receiving groove is formed by two parts assembled together, the tensioned cable can act as a wedge that drives the parts apart. This can cause play or looseness between the parts, and may result in the cable becoming stuck between the parts. With the claimed construction, there is no potential for a gap between these walls because they are made integral and continuous as one-piece with the cam portion.

This is not a mere case where parts are integrally formed together "in order to simplify assembly of an apparatus," as alleged by the Examiner. Instead, the claim construction not only simplifies manufacturing – it also achieves a functional benefit not achieved by the prior art multi-part approach. Despite the fact that stamping and other integral forming operations have been around for decades, prior to the present application nobody has ever suggested the concept of forming the specific components recited in claim 1 together as one integral continuous piece. Thus, the Applicants submit that they have developed a novel and non-obvious invention not taught or suggested by the prior art, and that also achieves a functional benefit not taught or suggested by the prior art.

For at least these reasons, the Applicants respectfully submit that claim 1 is patentable over the art of record, and request the Examiner to withdraw the outstanding obviousness rejection.

Independent Claims 25, 33, and 34

Independent claims 25, 33, and 34 recite the same limitations discussed above with respect to claim 1. For at least this reason, these claims are submitted to be patentable.

Independent Claim 7

Claim 7 recites "a sheet metal cam member on the brake actuator lever, the sheet metal cam member having a flange portion deformed to define a generally U-shaped groove with opposing side walls for receiving the brake cable and enabling winding thereof onto the cam member by movement of the lever in a brake applying direction relative to the mounting bracket, thereby applying tension to the cable for activating the brake system[.]" Further, claim 7 has been amended to recite that "the opposing side walls of the generally U-shaped groove are integral and continuous as one-piece with the cam member."

This construction achieves the functional benefit discussed above with respect to claim 1 of preventing the cable from wedging the walls of the groove apart. This is because the walls are "integral and continuous as one-piece." Also, by being "integral as one-piece with the cam member," the cost savings of providing the structure as a sheet metal part is achieved.

Thus, the Applicants respectfully submit that claim 7 defines over the art of record, and the Examiner is requested to withdraw the rejection against claim 7.

Independent Claim 17

Claim 17 is a method claim, and has been amended to recite the act of "deforming a sheet metal flange portion that is part of an integral and continuous with the cam member into a general U-shape so as to define a cable guide with opposing walls for receiving the brake cable and enabling winding thereon onto the cam member[.]" Claim 7 has also been amended to recite "wherein the opposing side walls are integral and continuous as one piece with the cam member." These added limitations, as with the above-discussed claims, emphasize the integral forming of the recited parts. It is this forming that ensures that the walls of the cable guide cannot be wedged apart. Moreover, Notaras does not teach how to stamp or form its structure into the claimed general U-shape for creating the cable guide.

Thus, for at least these reasons, claim 17 is respectfully submitted to be patentable over the art of record, and the Examiner is requested to withdraw the rejection against claim 17.

Independent Claim 23

Claim 23 has been amended as follows:

> forming a single piece of sheet metal to initially form a cam-and-drum member as an integral and continuous one-piece part including a protruding drum portion and a cam portion integral and continuous with the drum portion, the cam portion having a flange portion integral and continuous with the cam portion;
>
> deforming the flange portion into a general U-shape so as to define a cable guide for receiving the brake cable and enabling winding thereof onto the cam portion, wherein the opposing side walls are integral and continuous as one-piece with the cam-and-drum member;

As with the prior claims, the limitations added to claim 23 distinguish the claimed invention because the emphasize the one-piece and integral nature of the recited components. With the walls of the cable guide formed integral and continuous as one-piece, the functional benefit of preventing the cable wedging action is achieved.

Thus, for at least these reasons, claim 23 is respectfully submitted to be patentable over the art of record, and the Examiner is requested to withdraw the rejection against claim 23.

Independent Claim 27

Claim 27 has been amended to recite limitations similar to those discussed above for claim 1. The significant difference is that claim 27 does not require a cam and drum member, and only requires a cam member (which would cover a cam and drum member also). However, claim 27 still recites the important feature of "a flange portion deformed into a general U-shape with integral side walls continuous as one-piece with the cam portion to provide a groove defining a cable guide for receiving the brake cable and enabling winding thereof onto the cam member." This provides the benefit of having the cable guide formed as one integral piece, which saves costs and provides the functional benefit of preventing cable wedging as discussed above.

Thus, for at least these reasons, claim 23 is respectfully submitted to be patentable over the art of record, and the Examiner is requested to withdraw the rejection against claim 23.

Dependent Claims

Dependent claims 2-4, 8-16, 18-22, 24, 26 and 28-30 depend from the independent claims. These claims are submitted to be patentable based on the dependency from those independent claims, and for the reason that they recite additional patentable features.

Conclusion

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance, and a Notice to that effect is requested.

If the Examiner has any questions or suggestions for facilitating the prosecution of this application, she is encouraged to contact the undersigned at the below-listed telephone number.

Please charge any fees associated with the submission of this paper to Deposit Account Number 033975. The Commissioner for Patents is also authorized to credit any over payments to the above-referenced Deposit Account.

Respectfully submitted,
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